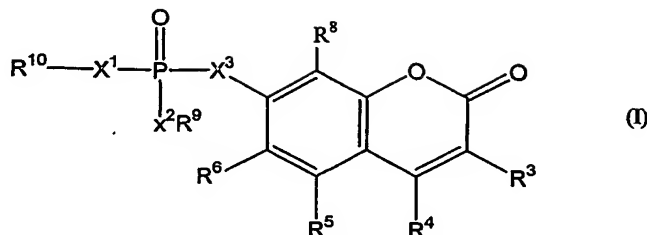


WHAT IS CLAIMED IS:

1. A compound of the formula I:



wherein R^3 , R^4 , R^5 , R^9 , and R^{10} are selected from the group consisting of H and groups or atoms other than H, and R^6 and R^8 are halo or hydrogen; X^1 , X^2 , and X^3 are independently O or S; provided that R^9 and R^{10} are not simultaneously H, when all of X^1 , X^2 , and X^3 are O.

2. The compound of claim 1, wherein R^3 , R^4 , and R^5 are selected from the group consisting of H, hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, sulfomethyl, a salt of sulfomethyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, guanidino, C_1 - C_6 alkylamino, C_1 - C_6 acylamino, C_1 - C_6 alkylamido, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylthio, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl, formyl, carboxamide of the formula $-(C=O)NR^1R^2$, where R^1 and R^2 are independently H, alkyl having 1-6 carbon atoms, an aryl, or R^1 and R^2 taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R^7 is H or alkyl having 1-6 carbon atoms, C_5 - C_8 halocycloalkyl, C_1 - C_6 hydroxyalkyl, C_5 - C_8 hydroxycycloalkyl, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_2 - C_6 alkoxycarbonyl, C_2 - C_6 alkoxycarbonyl C_1 - C_6 alkyl, carboxy C_1 - C_6 alkyl, carboxy C_1 - C_6 alkoxy, dicarboxy C_1 - C_6 alkyl, dicarboxy C_1 - C_6 alkoxy, C_2 - C_6 cyanoalkyl, phosphono C_1 - C_6 alkyl, phosphoryl C_1 - C_6 alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino; and R^9 and R^{10} are selected from the group consisting of H, C_1 - C_6 alkyl, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, arylcarbonyl, heteroaryl, C_1 - C_6 aminoalkyl, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_5 - C_8 halocycloalkyl, C_1 - C_6 hydroxyalkyl, C_5 - C_8 hydroxycycloalkyl, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_2 - C_6 alkoxycarbonyl, C_2 - C_6 alkoxycarbonyl C_1 - C_6 alkyl, carboxy C_1 - C_6 alkyl, carboxy C_1 -

C₆ alkoxy, dicarboxy C₁-C₆ alkyl, dicarboxy C₁-C₆ alkoxy, C₂-C₆ cyanoalkyl, phosphono C₁-C₆ alkyl, phosphoryl C₁-C₆ alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

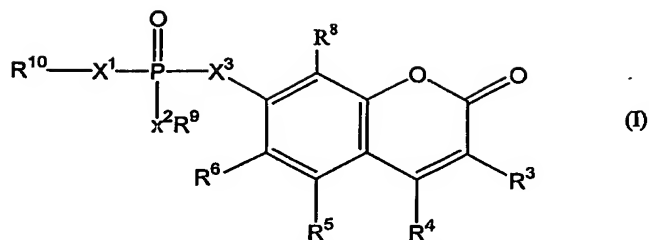
3. The compound of claim 1 or 2, wherein R⁴ is selected from the group consisting of H, hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, sulfomethyl, salt of sulfomethyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, guanidino, C₁-C₆ alkylamino, C₁-C₆ acylamino, C₁-C₆ alkylamido, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ perfluoroalkyl, halomethyl, C₁-C₆ alkylthio, C₅-C₈ cycloalkyl, C₁-C₆ haloalkyl, C₅-C₈ halocycloalkyl, C₁-C₆ hydroxyalkyl, C₅-C₈ hydroxycycloalkyl, C₁-C₆ alkoxy C₁-C₆ alkyl, C₂-C₆ alkoxycarbonyl, C₂-C₆ alkoxycarbonyl C₁-C₆ alkyl, carboxy C₁-C₆ alkyl, carboxy C₁-C₆ alkoxy, dicarboxy C₁-C₆ alkyl, dicarboxy C₁-C₆ alkoxy, C₂-C₆ cyanoalkyl, phosphono C₁-C₆ alkyl, phosphoryl C₁-C₆ alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

4. The compound of any of claims 1-3, wherein R⁹ and R¹⁰ are selected from the group consisting of H, C₁-C₆ alkyl, C₅-C₈ cycloalkyl, C₁-C₆ haloalkyl, C₁-C₆ perfluoroalkyl, C₂-C₆ alkenyl, and C₂-C₆ alkynyl, and aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

5. The compound of any of claims 1-4, wherein R⁹ and R¹⁰ are selected from the group consisting of H, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, and heteroaryl.

6. The compound of any of claims 1-5, wherein R⁹ and R¹⁰ are selected from the group consisting of H, C₁-C₆ alkyl, C₂-C₆ alkenyl, and C₂-C₆ alkynyl.

7. The compound of any of claims 1-6, wherein R^9 and R^{10} are selected from the group consisting of C_1 - C_6 alkyl.
8. The compound of any of claims 1-7, wherein R^9 and R^{10} are ethyl.
9. The compound of any of claims 1-8, wherein R^3 is selected from the group consisting of H, cyano, C_1 - C_6 alkyl, C_1 - C_6 perfluoroalkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, and heteroaryl, formyl, carboxamide of the formula $-(C=O)NR^1R^2$ where R^1 and R^2 are independently H, alkyl having 1-6 carbon atoms, an aryl, or R^1 and R^2 taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R^7 is H or alkyl having 1-6 carbon atoms.
10. The compound of any of claims 1-9, wherein R^4 is selected from the group consisting of H, cyano, sulfomethyl, salt of sulfomethyl, aryl, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, and C_1 - C_6 perfluoroalkyl.
11. The compound of any of claims 1-10, wherein R^4 is selected from the group consisting of C_1 - C_6 alkyl.
12. The compound of any of claims 1-11, wherein R^4 is methyl.
13. The compound of any of claims 1-12, wherein R^5 is H or C_1 - C_6 alkoxy.
14. The compound of any of claims 1-13, wherein R^6 and R^8 are fluoro.
15. The compound of any of claims 1-14, wherein R^9 and R^{10} are ethyl, R^4 is methyl, and R^6 and R^8 are fluoro.
16. The compound of any of claims 1-15, wherein X^1 and X^2 , X^2 , and X^3 are O.
17. The compound of any of claims 1-15, wherein X^1 and X^2 , and X^3 are S.
18. A method for detecting and/or measuring the activity of organophosphatase enzyme in a fluid comprising contacting the fluid with a compound of the formula I:



wherein R^3 - R^6 and R^8 - R^{10} can be any atom or group and X^1 , X^2 , and X^3 are independently O or S; measuring the fluorescence of a fluorescent product formed during the contacting; and correlating the measured fluorescence with the activity of the organophosphatase enzyme.

19. The method of claim 18, wherein the organophosphatase is paraoxonase.

20. The method of claim 18, wherein the organophosphatase is OPH.

21. The method of claim 18, wherein R^3 , R^4 , R^5 , R^9 , and R^{10} are selected from the group consisting of H and groups or atoms other than H, and R^6 and R^8 are independently halo or H.

22. The method of claim 18, wherein R^3 , R^4 , and R^5 are selected from the group consisting of H, hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, sulfomethyl, a salt of sulfomethyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, guanidino, C_1 - C_6 alkylamino, C_1 - C_6 acylamino, C_1 - C_6 alkylamido, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylthio, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl, formyl, carboxamide of the formula $-(C=O)NR^1R^2$ where R^1 and R^2 are independently H, alkyl having 1-6 carbon atoms, an aryl, or R^1 and R^2 taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R^7 is H or alkyl having 1-6 carbon atoms, C_5 - C_8 halocycloalkyl, C_1 - C_6 hydroxyalkyl, C_5 - C_8 hydroxycycloalkyl, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_2 - C_6 alkoxycarbonyl, C_2 - C_6 alkoxycarbonyl C_1 - C_6 alkyl, carboxy C_1 - C_6 alkyl, carboxy C_1 - C_6 alkoxy, dicarboxy C_1 - C_6 alkyl, dicarboxy C_1 - C_6 alkoxy, C_2 - C_6 cyanoalkyl, phosphono C_1 - C_6 alkyl, phosphoryl C_1 - C_6 alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido,

sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino; and R^9 and R^{10} are selected from the group consisting of H, C_1 - C_6 alkyl, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, arylcarbonyl, heteroaryl, C_1 - C_6 aminoalkyl, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_5 - C_8 halocycloalkyl, C_1 - C_6 hydroxyalkyl, C_5 - C_8 hydroxycycloalkyl, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_2 - C_6 alkoxy carbonyl, C_2 - C_6 alkoxy carbonyl C_1 - C_6 alkyl, carboxy C_1 - C_6 alkyl, carboxy C_1 - C_6 alkoxy, dicarboxy C_1 - C_6 alkyl, dicarboxy C_1 - C_6 alkoxy, C_2 - C_6 cyanoalkyl, phosphono C_1 - C_6 alkyl, phosphoryl C_1 - C_6 alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

23. The method of claim 18 or 22, wherein R^9 and R^{10} are ethyl, R^4 is methyl, R^6 and R^8 are fluoro, and X^1 , X^2 , and X^3 are O.

24. The method of claim 18 or 22, wherein X^1 and X^2 are O, X^3 is S, R^6 and R^8 are H; R^9 and R^{10} are ethyl, and R^4 is methyl.

25. The method of claim 18, wherein the fluid is a biological fluid.

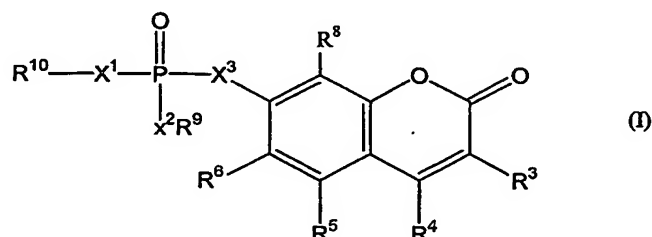
26. The method of claim 25, wherein the biological fluid is selected from the group consisting of blood, blood-derived compositions, serum, cerebrospinal fluid, urine, saliva, milk, ductal fluid, tears, semen, cell or tissue extracts, culture medium from the expression of paraoxonase or mutations of paraoxonase, samples arising from the fractionation of paraoxonase or HDL from biological samples.

27. The method of claim 26, wherein the cell or tissue extract is of brain, artery, vein or gland.

28. The method of claim 18, wherein the fluid is an environmental fluid.

29. The method of claim 28, wherein the environmental fluid is an extract of soil, water, or swab.

30. A method for selectively detecting organophosphatase in a sample suspected to contain organophosphatase and a phosphatase comprising contacting the sample with a compound of the formula I:



wherein R^3 - R^6 and R^8 - R^{10} can be any atom or group and X^1 , X^2 , and X^3 are independently O or S; measuring the fluorescence of a fluorescent product formed during the contacting; and correlating the measured fluorescence with the activity of the organophosphatase enzyme.

31. The method of claim 30, wherein the organophosphatase is paraoxonase.

32. The method of claim 30, wherein the organophosphatase is OPH.

33. The method of claim 30, wherein R^3 , R^4 , R^5 , R^9 , and R^{10} are selected from the group consisting of H and groups or atoms other than H, and R^6 and R^8 are independently halo or H.

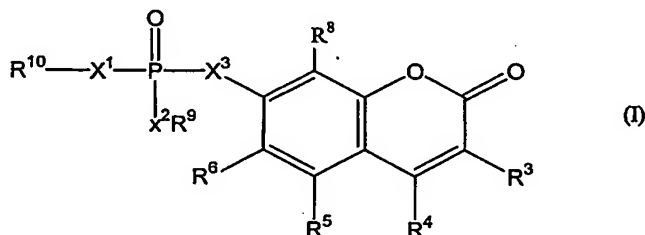
34. The method of claim 30, wherein R^3 , R^4 , and R^5 are selected from the group consisting of H, hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, sulfomethyl, a salt of sulfomethyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, guanidino, C_1 - C_6 alkylamino, C_1 - C_6 acylamino, C_1 - C_6 alkylamido, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylthio, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl, formyl, carboxamide of the formula $-(C=O)NR^1R^2$ where R^1 and R^2 are independently H, alkyl having 1-6 carbon atoms, an aryl, or R^1 and R^2 taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R^7 is H or alkyl having 1-6 carbon atoms, C_5 - C_8 halocycloalkyl, C_1 - C_6 hydroxyalkyl, C_5 - C_8 hydroxycycloalkyl, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_2 - C_6 alkoxycarbonyl, C_2 - C_6 alkoxycarbonyl C_1 - C_6 alkyl, carboxy C_1 - C_6 alkyl, carboxy C_1 - C_6 alkoxy, dicarboxy C_1 - C_6 alkyl, dicarboxy C_1 - C_6 alkoxy, C_2 - C_6 cyanoalkyl, phosphono C_1 - C_6 alkyl,

phosphoryl C₁-C₆ alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino; and R⁹ and R¹⁰ are selected from the group consisting of H, C₁-C₆ alkyl, C₅-C₈ cycloalkyl, C₁-C₆ haloalkyl, C₁-C₆ perfluoroalkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, arylcarbonyl, heteroaryl, C₁-C₆ aminoalkyl, C₅-C₈ cycloalkyl, C₁-C₆ haloalkyl, C₅-C₈ halocycloalkyl, C₁-C₆ hydroxyalkyl, C₅-C₈ hydroxycycloalkyl, C₁-C₆ alkoxy C₁-C₆ alkyl, C₂-C₆ alkoxy carbonyl, C₂-C₆ alkoxy carbonyl C₁-C₆ alkyl, carboxy C₁-C₆ alkyl, carboxy C₁-C₆ alkoxy, dicarboxy C₁-C₆ alkyl, dicarboxy C₁-C₆ alkoxy, C₂-C₆ cyanoalkyl, phosphono C₁-C₆ alkyl, phosphoryl C₁-C₆ alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

35. The method of claim 30, wherein R⁹ and R¹⁰ are ethyl, R⁴ is methyl, R⁶ and R⁸ are fluoro, and X¹, X², and X³ are O.

36. The method of claim 30, wherein X¹ and X² are O, X³ is S, R⁶ and R⁸ are H; R⁹ and R¹⁰ are ethyl, and R⁴ is methyl.

37. A method for detecting and/or measuring the activity of organophosphatase enzyme immobilized on a support comprising contacting the support with a compound of the formula I



wherein R³-R⁶ and R⁸-R¹⁰ can be any atom or group and X¹, X², and X³ are independently are independently O or S; measuring the fluorescence of a fluorescent product formed

during the contacting; and correlating the measured fluorescence with the activity of the organophosphatase enzyme.

38. The method of claim 37, wherein the organophosphatase is paraoxonase.

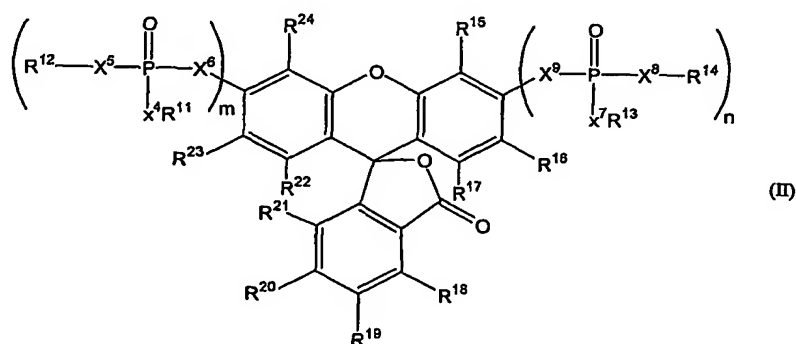
39. The method of claim 37, wherein the organophosphatase is OPH.

40. The method of claim 37, wherein the support is a membrane, resin, biosensor, microtiter plate, nanotube or dipstick.

41. The method of claim 37, wherein R^9 and R^{10} are ethyl, R^4 is methyl, R^6 and R^8 are fluoro, and X^1 , X^2 , and X^3 are O.

42. The method of claim 37, wherein X^1 and X^2 are O, X^3 is S, R^6 and R^8 are H; R^9 and R^{10} are ethyl, and R^4 is methyl.

43. A compound of the formula II:



wherein R^{11} - R^{14} are selected from the group consisting of H and groups or atoms other than H; X^4 - X^9 are independently O or S; n and m are 0 or 1 but m and n cannot be 0 simultaneously; R^{15} - R^{24} can be H or any substituent so long as the compound of formula II upon hydrolysis provides a fluorescent compound.

44. The compound of claim 43, wherein the hydrolysis takes place at the P- X^6 and/or P- X^9 bonds.

45. The compound of claim 43 or 44, wherein R^{11} - R^{14} are independently selected from the group consisting of H, C_1 - C_6 alkyl, C_5 - C_8 cycloalkyl, C_1 - C_6 haloalkyl, C_1 - C_6 perfluoroalkyl,

C₂-C₆ alkenyl, and C₂-C₆ alkynyl, and aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino; X⁴ - X⁹ are independently O or S; and m and n are 1.

46. The compound of any of claims 43 to 45, wherein R¹⁵-R²⁴ are independently selected from the group consisting of H, hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, sulfomethyl, a salt of sulfomethyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, guanidino, C₁-C₆ alkylamino, C₁-C₆ acylamino, C₁-C₆ alkylamido, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkylthio, C₅-C₈ cycloalkyl, C₁-C₆ haloalkyl, C₁-C₆ perfluoroalkyl, formyl, carboxamide of the formula $-(C=O)NR^1R^2$ where R¹ and R² are independently H, alkyl having 1-6 carbon atoms, an aryl, or R¹ and R² taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R⁷ is H or alkyl having 1-6 carbon atoms, an aryl, or R¹ and R² taken together form a saturated 5- or 6- membered ring having the formula $-(CH_2)_2-M-(CH_2)_2-$ where the ring moiety M is a single bond, an oxygen atom, a methylene group, or the secondary amine $-NR^7-$ where R⁷ is H or alkyl having 1-6 carbon atoms, C₅-C₈ halocycloalkyl, C₁-C₆ hydroxyalkyl, C₅-C₈ hydroxycycloalkyl, C₁-C₆ alkoxy C₁-C₆ alkyl, C₂-C₆ alkoxycarbonyl, C₂-C₆ alkoxycarbonyl C₁-C₆ alkyl, carboxy C₁-C₆ alkyl, carboxy C₁-C₆ alkoxy, dicarboxy C₁-C₆ alkyl, dicarboxy C₁-C₆ alkoxy, C₂-C₆ cyanoalkyl, phosphono C₁-C₆ alkyl, phosphoryl C₁-C₆ alkyl, mono-, di-, and trisaccharides, nucleic acids, oligonucleotides, amino acids, peptides, and proteins, and C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, arylcarbonyl, and heteroaryl, which may be optionally substituted with a substituent selected from the group consisting of hydroxyl, cyano, nitro, halo, amino, amido, azido, acetal, ketal, imido, sulfo, sulfonyl, sulfinyl, thiocyanato, aldehydo, keto, carbamoyl, urethane, ureido, and guanidino.

47. The compound of claim 43 or 44, wherein R¹¹-R¹⁴ are independently selected from the group consisting of H, C₁-C₆ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, aryl, and heteroaryl.

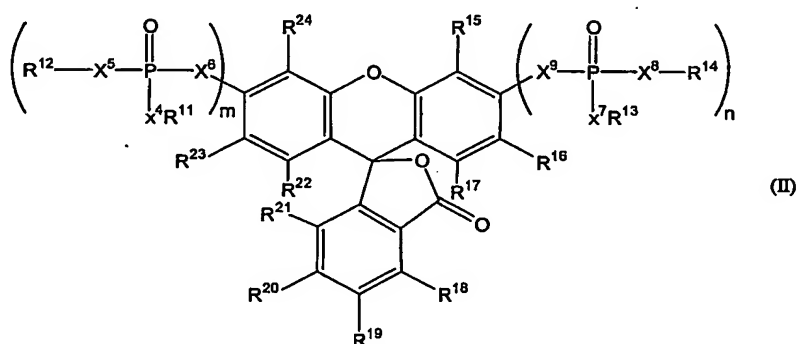
48. The compound of any of claims 43 to 47, wherein R¹¹-R¹⁴ are independently selected from the group consisting of H, C₁-C₆ alkyl, C₂-C₆ alkenyl, and C₂-C₆ alkynyl.

49. The compound of any of claims 43 to 48, wherein R^{11} - R^{14} groups are independently selected from the group consisting of C_1 - C_6 alkyl.

50 The compound of any of claims 43-49, wherein R^{11} - R^{14} is ethyl.

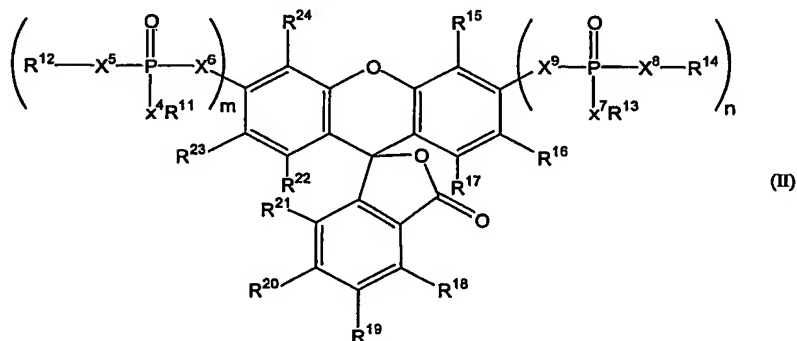
51. The compound of any of claims 43-49, wherein m and n are 1.

52. A compound of formula II



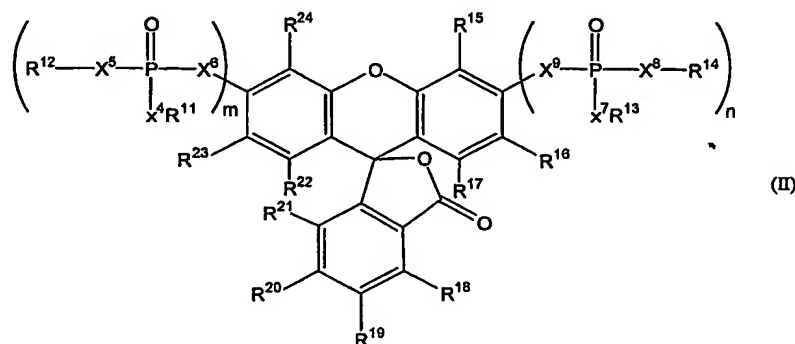
wherein X^4 - X^9 are O, R^{15} - R^{24} are H, R^{11} - R^{14} are ethyl; and m and n are 1.

53. A compound of formula II:



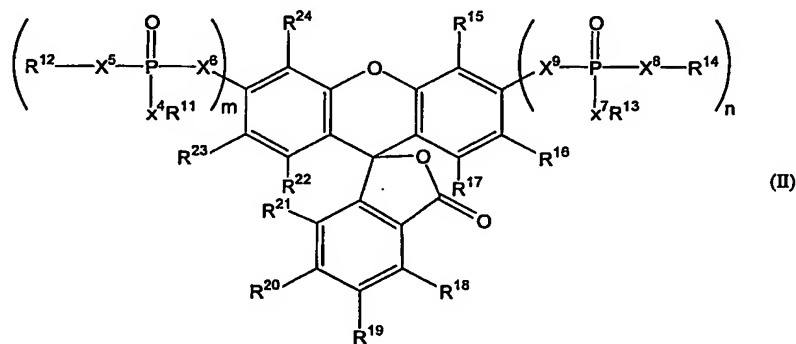
wherein X^4 , X^5 , X^7 , and X^8 are O; X^6 and X^9 are S; R^{15} - R^{24} are H; R^{11} - R^{14} are ethyl; and m and n are 1.

54. A method for detecting and/or measuring the activity of organophosphatase enzyme in a fluid comprising contacting the fluid with a compound of the formula II:



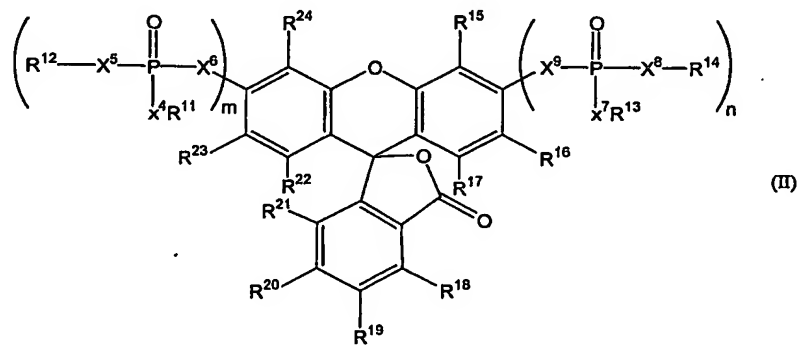
wherein R^{11} - R^{14} are selected from the group consisting of H and groups or atoms other than H; X^4 - X^9 are independently O or S; n and m are 0 or 1 but m and n cannot be 0 simultaneously; R^{15} - R^{24} can be H or any substituent so long as the compound of formula II upon hydrolysis provides a fluorescent compound.

55. A method for selectively detecting organophosphatase in a sample suspected to contain organophosphatase and a phosphatase comprising contacting the sample with a compound of the formula II:



wherein R^{11} - R^{14} are selected from the group consisting of H and groups or atoms other than H; X^4 - X^9 are independently O or S; n and m are 0 or 1 but m and n cannot be 0 simultaneously; R^{15} - R^{24} can be H or any substituent so long as the compound of formula II upon hydrolysis provides a fluorescent compound.

56 A method for detecting and/or measuring the activity of organophosphatase enzyme immobilized on a support comprising contacting the support with a compound of the formula II:



wherein R^{11} - R^{14} are selected from the group consisting of H and groups or atoms other than H; X^4 - X^9 are independently O or S; n and m are 0 or 1 but m and n cannot be 0 simultaneously; R^{15} - R^{24} can be H or any substituent so long as the compound of formula II upon provides a fluorescent compound.